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EXAMINER	
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ART UNIT	PAPER NUMBER
2452	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/666,647	LEE ET AL.	
	Examiner	Art Unit	
	HIEU T. HOANG	2452	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-10,13,16,18-23,25,28,30,32,35,39,42,51-54,56,71,72,74 and 75* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/13/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1-6,8-10,13,16,18-23,25,28,30,32,35,39,42,51-54,56,71,72,74 and 75.

DETAILED ACTION

1. This office action is in response to the communication filed on 03/23/2009.

2. Claims 12, 24, 34, 41, and 55 are cancelled.

3. Claims 1-6, 8-10, 13, 16, 18-23, 25, 28, 30, 32, 35, 39, 42, 51-54, 56, 71, 72, 74 and 75 are pending.

Response to Arguments

4. Applicant's arguments on the U.S.C. 103 rejection have been fully considered but found persuasive.

5. Applicant argues that Leung-AAPA does not teach "a common transport channel" used for transmitting data in a point-to-multipoint service. This argument is respectfully traversed. Applicant emphasizes on Leung relying on duplication of frames for broadcasting frames to each of the receivers, and concludes that Leung utilizes dedicated channel for transmitting data to each of the receivers. The examiner disagrees that duplication of frames/packets has anything related to utilizing a dedicated channel or common channel for transmission. On the contrary to using dedicated channels for point-to-multipoint data asserted by the applicant, Leung discloses that point-to-multipoint data are transmitted on **a single** broadcast channel (fig. 15B, fig. 16, YES branch, [0112], [0113], [0115], transmitting the group call for point-to-multipoint on **a predefined Broadcast channel,** each receivers are informed of **the transmission channel**)

6. Applicant argues that Leung-AAPA does not teach a PDCP entity (packet header compression module) that is above the radio link and the MAC layer (in a network protocol stack). In rebuttal, first, AAPA (fig. 4, applicant admitted prior art) clearly shows a PDCP on top of both RLC and MAC layers. Therefore, utilizing a PDCP entity above both RLC and MAC layers for compressing message headers was known in the art at the time of the invention. It would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to substitute a ROHC with a PDCP entity (above RLC and MAC layers) and a PDSN with a CRNC to apply Leung's teachings to the UMTS mobile environment of AAPA and such that header compression is done at CRNC for multicast (centralized) to save

computing resources from having to do multiple compression/depression at a time for multicast, while maintaining header compression at each SRNC for unicast because this is conventional as in AAPA and doing header compression at SRNC instead of at CRNC for unicast will reduce unnecessary load on the centralized CRNC. Second, applicant argues that Leung's ROHC is at the link layer, and asserts therefore ROHC is at best at RLC or MAC layer. The examiner disagrees. Assuming, arguendo, that ROHC is at the link layer (which is layer-2 of a protocol stack), there is still no evident that ROHC is at RLC or MAC layer, because RLC and MAC are both sub-layers in layer-2 as known in the art, and ROHC can be a sub-layer in layer-2. It is also known in the art that PDCP is a sub-layer in layer-2 protocol stack, on top of RLC and MAC sub-layers (layer-2).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-6, 8-10, 13, 16, 18-23, 25, 28, 30, 32, 35, 39, 42, 51-54, 56, 71, 72, 74 and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leung et al.

(US 2003/0087653, hereafter Leung) in view of Applicant Admitted Prior Art (background of the invention in the application, figures 1-5, identified as Prior Art and description of these figures, hereafter AAPA).

9. For claim 1, Leung discloses a method for providing point-to-multipoint services in a radio communication system (abstract), the method comprising:

- performing Internet protocol header compression to form header compressed data (figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6) in a robust header compression (ROHC) entity located within a packet data service node (PDSN)),
- in a point-to-point service, transmitting the header compressed data to one or more users of the radio communication system; in a point-to-multipoint service, transmitting the header compressed data over a common transport channel to each of a plurality of the users of the radio communication system ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, fig. 15B, fig. 16, YES branch, [0112], [0113], [0115], a broadcast channel BC is a point-to-multipoint or a single point-to-multipoint channel).
- wherein the internet protocol header compression is performed in a ROHC within a PDSN in case of the point-to-multipoint service ([0068] lines 5-8, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs), and
- wherein the point-to-multipoint service is a multimedia broadcast/multicast service (MBMS) ([0051] lines 1-4, HSBS is a point-to-multipoint service by the

term "broadcast", also see figure 2 video audio content to be transmitted over a broadcast service), and one ROHC entity exists in the PDSN for the users of the radio communication system which individually receive the point-to-multipoint service from the PDSN in case of the point-to-multipoint service ([0068] lines 5-8, ROHC in a PDSN, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs).

Leung does not disclose: a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point service, and a controlling radio network controller (CRNC); and wherein in the case of the point-to-multipoint service, the PDCP entity is located within a layer of a network protocol stack that is located above a layer in which a radio link control (RLC) entity is located, and above a layer in which a medium access control (MAC) entity is located.

However, AAPA discloses a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point service (fig. 5, PDCP in a SRNC for point-to-point transmission to a user equipment UE via a dedicated transmission channel for unicast), and a CRNC (fig. 5, CRNC).

wherein in the case of the point-to-multipoint service, the PDCP entity is located within a layer of a network protocol stack that is located above a layer in which a radio link control (RLC) entity is located, and above a layer in which a medium access control (MAC) entity is located (fig. 4, background art, PDCP above RLC and MAC).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to substitute a

ROHC with a PDCP and a PDSN with a CRNC to apply Leung's teachings to the UMTS mobile environment of AAPA and such that header compression is done at CRNC for multicast (centralized) to save computing resources from having to do multiple compression/depression at a time for multicast, while maintaining header compression at each SRNC for unicast because this is conventional as in AAPA and doing header compression at SRNC instead of at CRNC for unicast will reduce unnecessary load on the centralized CRNC.

10. For claim 18, Leung discloses method of receiving data of a point-to-multipoint service in a radio communication system (abstract), the method comprising:

- in a point-to-point service, receiving header compressed data from a radio communication system; in a point-to-multipoint service, receiving the header compressed data over a common transport channel from the radio communication system ([0068] lines 1-6) in at least one of a point-to-point service and a point-to-multipoint service depending upon a threshold value ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, fig. 15B, fig. 16, YES branch, [0112], [0113], [0115], a broadcast channel BC is a point-to-multipoint or point-to-multipoint channel as in fig. 15B);
- decompressing the received header compressed data to allow a user to access the point-to-multipoint service ([0068] lines 9-12).
- wherein the internet protocol header compression is performed in a robust header compression protocol ROHC within a packet data service node PDSN in

case of the point-to-multipoint service ([0068] lines 5-8, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs), and

- wherein the point-to-multipoint service is a multimedia broadcast/multicast service (MBMS) ([0051] lines 1-4, HSBS is a point-to-multipoint service by the term "broadcast", also see figure 2 video audio content to be transmitted over a broadcast service), and one ROHC entity exists in the PDSN for the users of the radio communication system which individually receive the point-to-multipoint service from the PDSN in the case of the point-to-multipoint service ([0068] lines 5-8, ROHC in a PDSN, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs).

Leung does not disclose: a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point service, and a controlling radio network controller (CRNC); and wherein in the case of the point-to-multipoint service, the PDCP entity is located within a layer of a network protocol stack that is located above a layer in which a radio link control (RLC) entity is located, and above a layer in which a medium access control (MAC) entity is located.

However, AAPA discloses a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point service (fig. 5, PDCP in a SRNC for point-to-point transmission to a user equipment UE via a dedicated transmission channel for unicast), and a CRNC (fig. 5, CRNC).

wherein in the case of the point-to-multipoint service, the PDCP entity is located within a layer of a network protocol stack that is located above a layer in which a radio link control (RLC) entity is located, and above a layer in which a medium access control (MAC) entity is located (fig. 4, background art, PDCP above RLC and MAC)

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to substitute a ROHC with a PDCP and a PDSN with a CRNC to apply Leung's teachings to the UMTS mobile environment of AAPA and such that header compression is done at CRNC for multicast (centralized) to save computing resources from having to do multiple compression/depression at a time for multicast, while maintaining header compression at each SRNC for unicast because this is conventional as in AAPA and doing header compression at SRNC instead of at CRNC for unicast will reduce unnecessary load on the centralized CRNC.

11. For claim 28, Leung discloses in a radio communication system for providing and receiving data of a point-to-multipoint service (abstract), a radio network controller comprising:

- a header compressing portion that performs Internet protocol header compression to form header compressed data (figure 4 step t3, [0065] lines 9-14, [0068] lines 2-4, robust header compression ROHC compresses IP data headers in a PDSN); and

- a transmitting portion configured to: in a point-to-point service, transmit the header compressed data to one or more users of the radio communication system; in a point-to-multipoint service, transmit the header compressed data over a common transport channel to each of a plurality of the users of the radio communication system ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, fig. 15B, fig. 16, YES branch, [0112], [0113], [0115], a broadcast channel BC is a point-to-multipoint or point-to-multipoint channel as in fig. 15B);
- wherein the internet protocol header compression is performed in a robust header compression protocol ROHC within a packet data service node PDSN in case of the point-to-multipoint service ([0068] lines 5-8, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs), and
- wherein the point-to-multipoint service is a multimedia broadcast/multicast service (MBMS) ([0051] lines 1-4, HSBS is a point-to-multipoint service by the term "broadcast", also see figure 2 video audio content to be transmitted over a broadcast service), and one ROHC entity exists in the PDSN for the users of the radio communication system which individually receive the point-to-multipoint service from the PDSN in the case of the point-to-multipoint service ([0068] lines 5-8, ROHC in a PDSN, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs).

Leung does not disclose: a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point service, and a controlling radio network controller (CRNC); wherein in the case of the point-to-multipoint service, the PDCP entity is located within a layer of a network protocol stack that is located above a layer in which a radio link control (RLC) entity is located, and above a layer in which a medium access control (MAC) entity is located.

However, AAPA discloses a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point service (fig. 5, PDCP in a SRNC for point-to-point transmission to a user equipment UE via a dedicated transmission channel for unicast), and a CRNC (fig. 5, CRNC).

wherein in the case of the point-to-multipoint service, the PDCP entity is located within a layer of a network protocol stack that is located above a layer in which a radio link control (RLC) entity is located, and above a layer in which a medium access control (MAC) entity is located (fig. 4, background art, PDCP above RLC and MAC).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to substitute a ROHC with a PDCP and a PDSN with a CRNC to apply Leung's teachings to the UMTS mobile environment of AAPA and such that header compression is done at CRNC for multicast (centralized) to save computing resources from having to do multiple compression/depression at a time for multicast, while maintaining header compression at each SRNC for unicast because this is conventional as in AAPA and doing header

compression at SRNC instead of at CRNC for unicast will reduce unnecessary load on the centralized CRNC.

12. For claim 35, Leung discloses in a radio communication system for providing and receiving data of a point-to-multipoint service (abstract), a user equipment comprising:

- a receiving portion, configured to: in a point-to-point service, receive the header compressed data to one or more users of the radio communication system; in a point-to-multipoint service, receive the header compressed data over a common transport channel to each of a plurality of the users of the radio communication system ([0068] lines 1-5, a mobile station MS receives header compressed data, [0111] lines 9-14 and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, fig. 15B, fig. 16, YES branch, [0112], [0113], [0115], a broadcast channel BC is a point-to-multipoint or point-to-multipoint channel as in fig. 15B);
- a header decompressing portion operatively connected with the receiving portion, the header decompressing portion decompressing the header compressed data to access the point-to-multipoint service ([0068] lines 9-12).
- wherein the header compressed data is formed in a robust header compression protocol ROHC within a packet data service node PDSN in case of the point-to-multipoint service ([0068] lines 5-8, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs), and

- wherein the point-to-multipoint service is a multimedia broadcast/multicast service (MBMS) ([0051] lines 1-4, HSBS is a point-to-multipoint service by the term "broadcast", also see figure 2 video audio content to be transmitted over a broadcast service), and one ROHC entity exists in the PDSN for the users of the radio communication system which individually receive the point-to-multipoint service from the PDSN in the case of the point-to-multipoint service ([0068] lines 5-8, ROHC in a PDSN).

Leung does not disclose: a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point service, and a controlling radio network controller (CRNC); and wherein in the case of the point-to-multipoint service, the PDCP entity is located within a layer of a network protocol stack that is located above a layer in which a radio link control (RLC) entity is located, and above a layer in which a medium access control (MAC) entity is located.

However, AAPA discloses a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point service (fig. 5, PDCP in a SRNC for point-to-point transmission to a user equipment UE via a dedicated transmission channel for unicast), and a CRNC (fig. 5, CRNC).

wherein in the case of the point-to-multipoint service, the PDCP entity is located within a layer of a network protocol stack that is located above a layer in which a radio link control (RLC) entity is located, and above a layer in which a medium access control (MAC) entity is located (fig. 4, background art, PDCP above RLC and MAC).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to substitute a ROHC with a PDCP and a PDSN with a CRNC to apply Leung's teachings to the UMTS mobile environment of AAPA and such that header compression is done at CRNC for multicast (centralized) to save computing resources from having to do multiple compression/depression at a time for multicast, while maintaining header compression at each SRNC for unicast because this is conventional as in AAPA and doing header compression at SRNC instead of at CRNC for unicast will reduce unnecessary load on the centralized CRNC.

13. For claim 42, Leung discloses a method for providing point-to-multipoint services in a radio communication system (abstract), the method comprising:

- performing Internet protocol header compression to form header compressed data (figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6) in a robust header compression (ROHC) entity located within a packet data service node (PDSN),
- in a point-to-point service, transmitting the header compressed data to one or more users of the radio communication system; in a point-to-multipoint service, transmitting the header compressed data over a common transport channel to

each of a plurality of the users of the radio communication system ([0112] lines 1-7, fig. 15B, fig. 16, YES branch, [0112], [0113], [0115], a broadcast channel BC is a point-to-multipoint or point-to-multipoint channel as in fig. 15B).

- wherein the internet protocol header compression is performed in a robust header compression protocol ROHC within a packet data service node PDSN in case of the point-to-multipoint service ([0068] lines 5-8, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs), and
- wherein the point-to-multipoint service is a multimedia broadcast/multicast service (MBMS) ([0051] lines 1-4, HSBS is a point-to-multipoint service by the term "broadcast", also see figure 2 video audio content to be transmitted over a broadcast service), and one ROHC entity exists in the PDSN for the users of the radio communication system which individually receive the point-to-multipoint service from the PDSN in the case of the point-to-multipoint service ([0068] lines 5-8, ROHC in a PDSN, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs).

Leung does not disclose: a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point service, and a controlling radio network controller (CRNC); wherein in the case of the point-to-multipoint service, the PDCP entity is located within a layer of a network protocol stack that is located above a layer in which a radio link control (RLC) entity is located, and above a layer in which a medium access control (MAC) entity is located.

However, AAPA discloses a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point service (fig. 5, PDCP in a SRNC for point-to-point transmission to a user equipment UE via a dedicated transmission channel for unicast), and a CRNC (fig. 5, CRNC);

wherein in the case of the point-to-multipoint service, the PDCP entity is located within a layer of a network protocol stack that is located above a layer in which a radio link control (RLC) entity is located, and above a layer in which a medium access control (MAC) entity is located (fig. 4, background art, PDCP above RLC and MAC).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to substitute a ROHC with a PDCP and a PDSN with a CRNC to apply Leung's teachings to the UMTS mobile environment of AAPA and such that header compression is done at CRNC for multicast (centralized) to save computing resources from having to do multiple compression/depression at a time for multicast, while maintaining header compression at each SRNC for unicast because this is conventional as in AAPA and doing header compression at SRNC instead of at CRNC for unicast will reduce unnecessary load on the centralized CRNC.

14. For claim 51, Leung discloses a method of providing Internet protocol header information to a plurality of terminals in a wireless communication system (abstract), the method comprising:

- performing header compression of Internet protocol header information to form compressed header data (figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6);
- in a point-to-point service, transmitting the header compressed data to one or more users of the radio communication system; in a point-to-multipoint service, transmitting the header compressed data over a common transport channel to each of a plurality of the users of the radio communication system ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, fig. 15B, fig. 16, YES branch, [0112], [0113], [0115], a broadcast channel BC is a point-to-multipoint or point-to-multipoint channel as in fig. 15B).
- wherein the internet protocol header compression is performed in a robust header compression protocol ROHC within a packet data service node PDSN in case of the point-to-multipoint service ([0068] lines 5-8, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs), and
- wherein the point-to-multipoint service is a multimedia broadcast/multicast service (MBMS) ([0051] lines 1-4, HSBS is a point-to-multipoint service by the term “broadcast”, also see figure 2 video audio content to be transmitted over a broadcast service), and one ROHC entity exists in the PDSN for the users of the radio communication system which individually receive the point-to-multipoint service from the PDSN in the case of the point-to-multipoint service ([0068] lines 5-8, ROHC in a PDSN, [0091], lines 16-35, a PDSN does header compression to form multi-cast compressed framed packets for multiple BSs).

Leung does not disclose: a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point service, and a controlling radio network controller (CRNC); wherein in the case of the point-to-multipoint service, the PDCP entity is located within a layer of a network protocol stack that is located above a layer in which a radio link control (RLC) entity is located, and above a layer in which a medium access control (MAC) entity is located.

However, AAPA discloses a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point service (fig. 5, PDCP in a SRNC for point-to-point transmission to a user equipment UE via a dedicated transmission channel for unicast), and a CRNC (fig. 5, CRNC);

wherein in the case of the point-to-multipoint service, the PDCP entity is located within a layer of a network protocol stack that is located above a layer in which a radio link control (RLC) entity is located, and above a layer in which a medium access control (MAC) entity is located (fig. 4, background art, PDCP above RLC and MAC)

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to substitute a ROHC with a PDCP and a PDSN with a CRNC to apply Leung's teachings to the UMTS mobile environment of AAPA and such that header compression is done at CRNC for multicast (centralized) to save computing resources from having to do multiple compression/depression at a time for multicast, while maintaining header compression at each SRNC for unicast because this is conventional as in AAPA and doing header

compression at SRNC instead of at CRNC for unicast will reduce unnecessary load on the centralized CRNC.

15. For claim 71, Leung discloses a wireless communication system for providing internet protocol header information to a plurality of terminals (abstract), the wireless communication system comprising:

- a header compression module adapted to receive internet protocol header information from an internet protocol module and compress the internet protocol header information to form compressed header data (figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6);
- a transmitter module configured to: in a point-to-point service, transmit the header compressed data to one or more users of the radio communication system; in a point-to-multipoint service, transmit the header compressed data over a common transport channel to each of a plurality of the users of the radio communication system ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, fig. 15B, fig. 16, YES branch, [0112], [0113], [0115], a broadcast channel BC is a point-to-multipoint or point-to-multipoint channel); and
- a receiving module configured to: in a point-to-point service, receive the header compressed data to one or more users of the radio communication system; in a point-to-multipoint service, receive the header compressed data over a common transport channel to each of a plurality of the users of the radio communication

system ([0111] lines 9-14, and [0112] lines 1-7, a dedicated channel is a unicast or a point-to-point channel, fig. 15B, fig. 16, YES branch, [0112], [0113], [0115], a broadcast channel BC is a point-to-multipoint or point-to-multipoint channel)

- wherein the point-to-multipoint service is a multimedia broadcast/multicast service (MBMS) ([0051] lines 1-4, HSBS is a point-to-multipoint service by the term "broadcast", also see figure 2 video audio content to be transmitted over a broadcast service), and one ROHC entity exists in the PDSN for the users of the radio communication system which individually receive the point-to-multipoint service from the PDSN in the case of the point-to-multipoint service ([0068] lines 5-8, ROHC in a PDSN).

Leung does not disclose: a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point service, and a controlling radio network controller (CRNC); wherein in the case of the point-to-multipoint service, the PDCP entity is located within a layer of a network protocol stack that is located above a layer in which a radio link control (RLC) entity is located, and above a layer in which a medium access control (MAC) entity is located.

However, AAPA discloses a packet data convergence protocol (PDCP) entity located within a serving radio network controller (SRNC) in case of the point-to-point service (fig. 5, PDCP in a SRNC for point-to-point transmission to a user equipment UE via a dedicated transmission channel for unicast), and a CRNC (fig. 5, CRNC).

wherein in the case of the point-to-multipoint service, the PDCP entity is located within a layer of a network protocol stack that is located above a layer in which a radio

link control (RLC) entity is located, and above a layer in which a medium access control (MAC) entity is located (fig. 4, background art, PDCP above RLC and MAC).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to substitute a ROHC with a PDCP and a PDSN with a CRNC to apply Leung's teachings to the UMTS mobile environment of AAPA and such that header compression is done at CRNC for multicast (centralized) to save computing resources from having to do multiple compression/depression at a time for multicast, while maintaining header compression at each SRNC for unicast because this is conventional as in AAPA and doing header compression at SRNC instead of at CRNC for unicast will reduce unnecessary load on the centralized CRNC.

16. For claims 2 and 74, Leung-AAPA discloses the invention as in claims 1 and 71. Leung-AAPA further discloses the point-to-point service is employed if a total number of users within a cell is below the threshold value (Leung, fig. 16 steps 904, 910, and 912).

17. For claims 3 and 75, Leung-AAPA discloses the invention as in claims 1, 71. Leung-AAPA further discloses the point-to-multipoint service is employed if a total number of users within a cell is at or above the threshold value (Leung, fig. 16 steps 904 and 906).

18. For claims 4, 30, Leung-AAPA discloses the invention as in claims 1, 28, and 35. Leung-AAPA further discloses the Internet protocol header compression is respectively performed for each type of MBMS service to be provided (Leung, figure 4 step t3, [0065] lines 9-14, [0068] lines 5-6).

19. For claims 5 and 19, Leung-AAPA discloses the invention as in claims 1 and 28. Leung-AAPA further discloses the point-to-point service is transmitting data from a single sending point to a single receiving point (Leung, fig. 15A, each dedicated channel links between one BSC and 1 MS).

20. For claims 6 and 20, Leung-AAPA discloses the invention as in claims 5 and 19. Leung-AAPA further discloses the point-to-point service is based upon a total number of users within a cell of the radio communication system (Leung, fig. 16 steps 904, 910, and 912).

21. For claim 21, Leung-AAPA discloses the invention as in claim 19. Leung-AAPA further discloses the transmitting by point-to-point service is via a dedicated channel (Leung, [0111] lines 9-14).

22. For claims 9, 22, 53, and 72, Leung-AAPA discloses the invention as in claims 1, 51, and 71. Leung-AAPA further discloses the point-to-multipoint service is transmitting data from a single sending point to multiple receiving points (Leung, [0111] lines 1-3).

23. For claims 10 and 23, Leung-AAPA discloses the invention as in claims 9 and 22. Leung-AAPA further discloses the point-to-multipoint service is based upon a total number of users within a cell of the radio communication system (Leung, fig. 16 steps 904 and 906).

24. For claims 13, Leung-AAPA discloses the invention as in claim 1. Leung-AAPA further discloses the header compression is performed at a central location for each type of MBMS service (Leung, [0033] lines 3-6 and [0068] lines 5-6, a PDSN is read as a central location).

25. For claims 16 and 25, Leung-AAPA discloses the invention as in claims 1 and 18. Leung-AAPA further discloses a MBMS service is a service that is provided to a specified plurality of users (Leung, [0111] lines 1-5, a group call is a point-to-multipoint application to members of a group).

26. For claim 52, Leung-AAPA discloses the invention as in claim 51. Leung-AAPA further discloses header compression is performed once for the data transmitted to the plurality of terminals when the data is transmitted in the point-to-multipoint service (Leung, [0068] lines 5-9, the PDSN provides header compression once using ROHC protocol).

27. For claim 54, Leung-AAPA discloses the invention as in claim 51. Leung-AAPA further discloses the threshold value is associated with a number of terminals (Leung, [0111] lines 9-14, and [0112] lines 1-7).

28. For claims 8 and 39, Leung-AAPA discloses the invention as in claim 5 and 35. Leung-AAPA further discloses the transmitting and receiving by point-to-point service is via a dedicated channel (Leung, [0111] lines 9-14).

29. For claim 32, Leung-AAPA discloses the invention as in claim 31. Leung-AAPA further discloses the SRNC transmits via a dedicated transport channel (Leung, [0111] lines 9-14).

30. For claim 56, Leung discloses the invention as in claim 51. Leung does not disclose at least part of the Internet protocol header information is not compressed.

However, AAPA discloses at least part of the Internet protocol header information is not compressed (page 6 line 25 - page 7 line 5, only the absolutely necessary information required in the header is compressed).

Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Leung with the teachings of AAPA to compress only necessary portions of packet headers to conserve the system resources and time because compressing and decompressing of information takes time and resources.

Conclusion

31. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hieu T. Hoang whose telephone number is 571-270-1253. The examiner can normally be reached on Monday-Thursday, 8 a.m.-5 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on 571-272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HH

/Kenny S Lin/

Primary Examiner, Art Unit 2452